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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,038	05/23/2000	Mark Sean Hefty	P8193	4371

76973   7590   10/16/2009
The Law Offices of Christopher K. Gagne
c/o CPA Global
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Minneapolis, MN 55402

EXAMINER
NGUYEN, THANH T

ART UNIT	PAPER NUMBER
2444	

MAIL DATE	DELIVERY MODE
10/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	**Applicant(s)**
Notice of Allowability	09/576,038	HEFTY ET AL.
	Examiner	**Art Unit**	
	THANH TAMMY NGUYEN	2444	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *April 23, 2009*.

2. ☒ The allowed claim(s) is/are *32-35, 38-42, 44-52, 54-56 (New claims 1-19)*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08),
    Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
    of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413).
    Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

/THANH TAMMY NGUYEN/
Primary Examiner, Art Unit 2444

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EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37

CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than

the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with

Christopher K. Gane on June 1st, 2009.

3. The applicant has been amended as follow:

32. (Currently amended) A method comprising:

if an amount of data located in a first memory buffer in a local <u>computer</u> system

associated with a remote direct memory access (RDMA) request does not exceed a

maximum transfer size for a single memory to memory transfer operation over a data

network to a remote memory buffer in a remote <u>computer</u> system :

associating the data with a first transfer operation over the data network to the

remote memory buffer in the remote system; ~~and~~

if the amount of data associated with the first transfer operation has not reached

the maximum transfer size, associating a portion of the data otherwise to be associated

with a subsequent transfer operation for the RDMA request with the first transfer

operation instead of with the subsequent transfer operation, the portion of the data being

located in one or more portions of one or more other memory buffers in the local

computer system, the subsequent transfer operation being over the data network to the

remote memory buffer in the remote computer system; and

if the amount of data located in the first memory buffer exceeds the maximum

transfer size:

associating a portion of the data with the first transfer operation; and

associating one or more subsequent portions of the data with one or more

subsequent transfer operations.

33. (Previously presented) The method of claim 32, additionally comprising transferring the data

associated with the first transfer operation.

34. (Previously presented) The method of claim 33, additionally comprising associating a

descriptor with the first transfer operation, the descriptor to specify the remote memory buffer to

which the data is to be transferred and to indicate a portion of data remaining to be transferred

for the RDMA request.

35. (Previously presented) The method of claim 32, additionally comprising associating data

with one or more subsequent transfer operations.

36-37. (Cancelled).

38. (Previously presented) The method of claim 33, additionally comprising:

associating a descriptor with the first transfer operation, the descriptor to specify the remote

memory buffer to which the data is to be transferred and to indicate a portion of data remaining

to be transferred for the RDMA request; and transferring the data associated with the first

transfer operation.

39. (Previously presented) The method of claim 38, additionally comprising: associating another

descriptor with each of the one or more subsequent transfer operations; and transferring the data

associated with the one or more subsequent transfer operations.

40. (Currently amended) An apparatus comprising: an RDMA (remote direct memory access)

manager operable to service one or more RDMA requests, and to determine if an amount of data

located in a first memory buffer in a local computer system associated with an RDMA request

exceeds a maximum transfer size for a single memory to memory transfer operation over a data

network to a remote memory buffer in a remote computer system, and:

if it is determined that the amount of data located in a first memory buffer does not exceed the

maximum transfer size, then associate the data with a first transfer operation over the data

network to the remote memory buffer in the remote computer system; and

if the amount of data associated with the first transfer operation has not reached the maximum

transfer size associate a portion of the data otherwise to be associated with a subsequent transfer

operation data for the RDMA request with the first transfer operation instead of with the

subsequent transfer operation, the portion of the data being located in one or more portions of

one or more other memory buffers in the local computer system, the subsequent transfer

operation being over the network to the remote computer memory buffer in the remote computer

system; and

the RDMA manager additionally operable to: determine if the amount of data located in the first

memory buffer exceeds the maximum transfer size, and: if the amount of data located in the first

memory buffer exceeds the maximum transfer size associate a portion of the data and a

descriptor with the first transfer operation, the descriptor to specify the remote memory buffer to

which the data is to be transferred and to indicate a portion of data remaining to be transferred

for the RDMA request; and

associate one or more subsequent portions of the data with one or more subsequent transfer

operations.

41. (Previously presented) The apparatus of claim 40, the RDMA manager additionally operable

to transfer the data associated with the first transfer operation.

42. (Previously presented) The apparatus of claim 40, the RDMA manager additionally operable

to associate data with one or more subsequent transfer operations.

43. Cancelled.

44. (Currently amended) A system comprising:

a host fabric adapter device; and

an RDMA (remote direct memory access) manager included in a software

stack of the host fabric adapter, the RDMA manager operable to service one or more RDMA

requests, and to:

determine if an amount of data located in a first memory buffer in a local system associated with

an RDMA request exceeds a maximum transfer size for a single memory to memory transfer

operation over a data network to a remote memory buffer in a remote system, and:

if it is determined that the amount of data located in a first memory buffer does not exceed the

maximum transfer size, then associate the data with a first transfer operation over the data

network to the remote memory buffer in the remote system; and

if the amount of data associated with the first transfer operation has not reached the maximum

transfer size associate a portion of the data otherwise to be associated with a subsequent transfer

operation for the RDMA request with the first transfer operation instead of with the subsequent

transfer operation, the portion of the data being located in one or more portions of one or more

other memory buffers in the local system, the subsequent transfer operation being over the data

network to the remote memory buffer in the remote system; and the RDMA manager

additionally operable to: determine if the amount of data located in the first memory buffer

exceeds the maximum transfer size, and:

if the amount of data located in the first memory buffer exceeds the maximum transfer size:

associate a portion of the data and a descriptor with the first transfer operation, the descriptor to

specify the remote memory buffer to which the data is to be transferred and to indicate a portion

of data remaining to be transferred for the RDMA request; and

associate one or more subsequent portions of the data located with one or more subsequent

transfer operations.

45. (Previously presented) The system of claim 44, the RDMA manager additionally operable to

transfer the data associated with the first transfer operation.

46. (Cancelled).

47. (Cancelled).

48. (Currently amended) <u>Computer-readable storage medium including program instructions to</u>

<u>be executed by a computer processor for performing the following</u> [[Computer-readable memory

having instructions ~~An article comprising a machine-readable medium having machine-~~

~~accessible instructions~~, the instructions when executed by a machine result in operations

comprising ~~the following]]~~:

if an amount of data located in a first memory buffer in a local <u>computer</u> system

associated with a remote direct memory access (RDMA) request does not exceed a

maximum transfer size for a single memory to memory transfer operation over a data

network to a remote memory buffer in a remote <u>computer</u> system:

associating the data with a first transfer operation over the data network to the

remote memory buffer in the remote system; ~~and~~

if the amount of data associated with the first transfer operation has not reached

the maximum transfer size, associating a portion of the data otherwise to be associated with a

subsequent transfer operation for the RDMA request with the first transfer operation instead of

with the subsequent transfer operation, the portion of the data being located in one or more

portions of one or more other memory buffers in the local system, the subsequent transfer

operation being over the data network to the remote memory buffer in the remote system<u>; and</u>

<u>if the amount of data located in the first memory buffer exceeds the maximum</u>

<u>transfer size:</u>

<u>associating a portion of the data with the first transfer operation; and</u>

<u>associating one or more subsequent portions of data located in the first</u>

<u>memory buffer with a corresponding number of one or more subsequent transfer</u>

<u>operations</u>.

49. (Previously presented) The article of claim 48, additionally comprising instructions that

result in a machine transferring the data associated with the first transfer operation.

50. (Previously presented) The article of claim 49, additionally comprising instructions that

result in a machine associating a descriptor with the first transfer operation.

51. (Previously presented) The article of claim 48, additionally comprising instructions that

result in a machine associating data with one or more subsequent transfer operations.

52. (Previously presented) The article of claim 51, wherein the first and one or more subsequent

transfer operations are performed in response to one or more RDMA (remote direct memory

access) requests.

53. (Cancelled).

54. (Previously presented) The article of claim [[53]] 48, additionally comprising instructions

that result in a machine:

associating a descriptor with the first transfer operation, the descriptor to specify the remote

memory buffer to which the data is to be transferred and to indicate a portion of data remaining

to be transferred for the RDMA request; and

transferring the data associated with the first transfer operation.

55. (Previously presented) The article of claim 54, additionally comprising instructions that

result in a machine:

associating a descriptor with each of the one or more subsequent transfer operations; and

transferring the data associated with the one or more subsequent transfer operations.

56.(Previously presented) The method of claim 32, wherein the RDMA request is received via a

single function call and the portion of data corresponding to an amount of data that when added

with the amount of data in the first memory buffer does not exceed the maximum transfer size.

4. Following is an examiner's statement of reasons for allowance:

5. With respect to claims 32-35, 38-42,44-46, 48-52, and 54-56, the prior art of record,

individually or in combination, fails to teach, suggest or render obvious the claimed invention in

combination with specific amended limitations as recited in claims 32, 40, 44, and 48.

6.   Any comments considered necessary by applicant must be submitted no later than

the payment of the issue fee and, to avoid processing delays, should preferably accompany the

issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tammy T. Nguyen whose telephone number is 571-272- 3929.

The examiner can normally be reached on Monday - Friday 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, *William Vaughn* can be reached on 571-272-3922. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300. Information

regarding the status of an application may be obtained from the Patent Application Information

Retrieval (PAIR) system. Status information for published applications may be obtained from

either Private PAIR or Public PAIR. Status information for unpublished applications is available

through Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from

a USPTO Customer Service Representative or access to the automated information system, call

800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/THANH TAMMY NGUYEN/

Primary Examiner, Art Unit 2444